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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,278	02/01/2005	Matthias Fies	C 2692 PCT/US	3864

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COGNIS CORPORATION
PATENT DEPARTMENT
300 BROOKSIDE AVENUE
AMBLER, PA 19002

EXAMINER	
KILPATRICK, BRYAN T	
ART UNIT	PAPER NUMBER
4112	
MAIL DATE	DELIVERY MODE
05/30/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/523,278	FIES ET AL.	
	Examiner	Art Unit	
	BRYAN T. KILPATRICK	4112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *16-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02/01/2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/01/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Summary

1. This is the initial Office action based on the 10/523,278 application filed February 01, 2005.

2. Claims 1 – 34 are pending. Claims 1 – 15 have been cancelled and claims 16 – 34 have been fully considered.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 16, 18, 19, 20, 21, 31, 32 and 33 are rejected under 35 U.S.C. 103(a) as being obvious over BRYAN ET AL. (U.S. Patent 5,098,547) in view of BOUTIN ET AL. (U.S. Patent 4,294,676).

Instant claim 16 presents a process for monitoring the stability of compositions that contain vinylog compounds. The process is comprised of determining a content of dissolved oxygen in a composition, and comparing the content of dissolved oxygen in the composition with predetermined reference values for a condition of the composition whereby the stability of the composition is determined. In the *Summary of the Invention in column 1, first paragraph*, BRYAN ET AL. teaches the use of a dissolved oxygen system comprised of a system and sensor. The system and sensor response to oxygen is detected and analyzed by generating known values of additional oxygen for the purposes of automatic self calibration of the sensor and self testing of the sensor and system.

Instant claim 18 states a process where dissolved oxygen is continuously determined and comparison of the dissolved oxygen content determined with the reference values is continuously carried out. BRYAN ET AL. teaches in the *Summary of the Invention in column 1, first paragraph* the use of a dissolved oxygen system comprised of a system and sensor. The system and sensor response to oxygen is detected and analyzed by generating known values of

additional oxygen for the purposes of automatic self calibration of the sensor and self testing of the sensor and system.

Instant claim 19 states a process where the composition comprises a reacting mixture under reduced pressure. BRYAN ET AL. states in the *column 1, first paragraph of the Description of the Prior Art* that the operation of the oxygen sensor is maintained such that the signal from the sensor is approximately linearly proportional to the partial pressure of oxygen or the concentration of dissolved oxygen. Examiner notes that the oxygen readings are dependent on the partial pressure of the oxygen, which is directly related to the concentration of oxygen, present in the reacting mixture of the composition.

Instant claim 20 states a process where dissolved oxygen content is measured with an oxygen sensor. C*laim 1* of BRYAN ET AL. claims an oxygen sensor for observing and measuring dissolved oxygen.

Instant claim 21 states a process where the dissolved oxygen content is amperometrically determined. BRYAN ET AL. teaches in the *first paragraph of the Description of the Prior Art in column 1* that "the present real time measurement of oxygen in industrial processes utilizes two well know forms of sensors: galvanic (voltage); and amperometric (current)."

Instant claim 24 states a process where the dissolved oxygen content is determined a composition contained in a vessel selected from the group consisting of the reaction vessels, storage vessels, and transportation vessels. BRYAN ET AL. teaches in the *first paragraph of column 6* that the process solution for which oxygen concentration is to be measured is in a tank.

Instant claim 31 states a process where dissolved oxygen is continuously determined and comparison of the dissolved oxygen content determined with the reference values is continuously carried out. The prior art teaches in the *Summary of the Invention in column 1, first paragraph* the use of a dissolved oxygen system comprised of a system and sensor. The system and sensor response to oxygen is detected and analyzed by generating known values of additional oxygen for the purposes of automatic self calibration of the sensor and self testing of the sensor and system.

Instant claim 32 states a process where the composition comprises a reacting mixture under reduced pressure. BRYAN ET AL. states in the *column 1, first paragraph of the Description of the Prior Art* that the operation of the oxygen sensor is maintained such that the signal from the sensor is approximately linearly proportional to the partial pressure of oxygen or the concentration of dissolved oxygen. Examiner notes that the oxygen readings are dependent on

the partial pressure of the oxygen, which is directly related to the concentration of oxygen, present in the reacting mixture of the composition.

Instant claim 33 states a process where the dissolved oxygen content is determined a composition contained in a vessel selected from the group consisting of the reaction vessels, storage vessels, and transportation vessels. BRYAN ET AL. teaches in the *first paragraph of column 6* that the process solution for which oxygen concentration is to be measured is in a tank.

BRYAN ET AL. does not explicitly disclose the use of a dissolved oxygen system for monitoring the stability of compositions containing vinylog compounds. However, BOUTIN ET AL. teaches in the *Description of the Prior Art in columns 1 – 2, paragraphs 6 – 7* that dissolved oxygen is introduced into acrylic monomer solutions which can contain vinylog compounds to inhibit polymerization in order to prevent difficulty when trying to polymerize solution and/or premature or accidental polymerization (examiner notes that in the *first paragraph of the Specification of the current application* stability refers to stability to control polymerization). BRYAN ET AL. and BOUTIN ET AL. are analogous art because they are centered on monitoring oxygen in solutions. At the time of the invention, it would have been obvious to one of ordinary skill in the art to use the dissolved oxygen system of BRYAN ET AL. to monitor the dissolved oxygen concentration of the acrylic monomer solutions in BOUTIN ET AL. The motivation would have

been to monitor the dissolved oxygen concentration in acrylic monomer solutions to prevent difficulty when trying to polymerize solutions and/or prevent premature or accidental polymerization; as previously stated in the *Description of the Prior Art in columns 1 – 2, paragraphs 6 – 7* of BOUTIN ET AL. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being obvious over BRYAN ET AL. (U.S. Patent 5,098,547) in view of KURKLAND.

Instant claim 17 presents a process where the stability is monitored by determining the time required for complete consumption of the dissolved oxygen from the measured content of dissolved oxygen and the rate at which oxygen is consumed under the conditions of the composition. In the *Abstract*, BRYAN ET AL. teaches the use of a dissolved oxygen system comprised of a system and sensor for monitoring dissolved oxygen. BRYAN ET AL. does not explicitly disclose the use of a dissolved oxygen system for monitoring stability of compositions. However, in the *Introduction, p. 1139 – 1141*, of KURKLAND several experiments have been conducted to link the rate of oxygen consumption to polymerization of specific vinylog compounds. BRYAN ET AL. and KURKLAND are analogous art because they are they are centered on monitoring oxygen in solutions. At the time of the invention, it would have been obvious to one of ordinary skill in the art to use the dissolved oxygen system of BRYAN ET

AL. to monitor the rate of oxygen consumption discussed in KURKLAND. The motivation would have been to monitor the oxygen concentration in the vinylog solutions to prevent difficulty when trying to polymerize solutions and/or prevent premature or accidental polymerization. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

8. Claim 22, 25, 26 – 28, and 34 are rejected under 35 U.S.C. 103(a) as being obvious over ENVIRONMENT PROTECTION AGENCY (EPA) in view of KURKLAND.

Instant claim 22 states a process where the dissolved oxygen content is determined by titration. EPA teaches on *page 3 in the first paragraph of the Winkler Method section* a titration method for finding dissolved oxygen concentration in a sample.

Instant claim 25 states a process where a portion of the composition being monitored is removed from a vessel, passed through an analytical device where the dissolved oxygen content is determined and optionally returned to the vessel. EPA teaches methods for sampling and testing portions of bodies of water such as a reservoir via a dissolved oxygen meter, an analytical device for measuring the concentration oxygen, on *pages 1 – 12 of 5.2 Dissolved Oxygen and Biochemical Oxygen Demand*.

Instant claim 26 states a process where the dissolved oxygen content is determined at several different locations with the composition contained in a vessel. Instant claim 27 states a process where the dissolved oxygen content is determined in an upper region of a liquid phase of the composition. Instant claim 28 states a process where the dissolved oxygen content is determined in a lower region of a liquid phase of a liquid phase of the composition. EPA teaches that dissolved oxygen (DO) levels vary in different bodies of water vertically and horizontally on *page 2 in the first paragraph of Considerations*.

Instant claim 34 states a process where a portion of the composition being monitored is removed from a vessel, passed through an analytical device where the dissolved oxygen content is determined and optionally returned to the vessel. EPA teaches methods for sampling and testing portions of bodies of water such as a reservoir via a dissolved oxygen meter, an analytical device for measuring the concentration oxygen, on *pages 1 – 12 of 5.2 Dissolved Oxygen and Biochemical Oxygen Demand*.

EPA does not explicitly disclose the use of a dissolved oxygen system for monitoring stability of compositions. However, in the *Introduction, p. 1139 – 1141*, of KURKLAND several experiments have been conducted to link the rate of oxygen consumption to polymerization of specific vinylog compounds. EPA and KURKLAND are analogous art because they are they are centered on

monitoring oxygen in solutions. At the time of the invention, it would have been obvious to one of ordinary skill in the art to use the dissolved oxygen measuring system of EPA to monitor the concentration of dissolved oxygen observed by KURKLAND. The motivation would have been to monitor the oxygen concentration in the vinylog solutions to prevent difficulty when trying to polymerize solutions and/or prevent premature or accidental polymerization. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

9. Claims 23 and 29 are rejected under 35 U.S.C. 103(a) as being obvious over KLAINER ET AL. (U.S. Patent 5,116,759) in view of KURKLAND.

Instant claim 23 states a process where the dissolved oxygen content is determined by spectroscopic methods, in at least one of an IR and an NIR spectral region. KLAINER ET AL. teaches in column 12, paragraph 4, lines 60 – 62 were several spectroscopic techniques for analysis, including infrared, can be used.

Instant claim 29 states a process where oxygen content is additionally determined in a vapor phase above a liquid phase in a vessel by means of a sensor. KLAINER ET AL. teaches in the *Abstract* reservoir sensors with an arrangement that can detect and quantify a given species in a gaseous, vapor or liquid sample; furthermore the prior art discusses in the *Background of the*

Invention, column 5, lines 29 – 52 the importance of analyzing oxygen concentrations in water samples.

KLAINER ET AL. does not explicitly disclose the use of a dissolved oxygen system for monitoring stability of compositions. However, in the *Introduction, p. 1139 – 1141*, of KURKLAND several experiments have been conducted to link the rate of oxygen consumption to polymerization of specific vinylog compounds. KLAINER ET AL. and KURKLAND are analogous art because they are they are centered on monitoring oxygen in solutions. At the time of the invention, it would have been obvious to one of ordinary skill in the art to use the measuring system of KLAINER ET AL. to monitor the concentration of dissolved oxygen observed by KURKLAND. The motivation would have been to monitor the oxygen concentration in the vinylog solutions to prevent difficulty when trying to polymerize solutions and/or prevent premature or accidental polymerization. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

10. Claim 30 is rejected under 35 U.S.C. 103(a) as being obvious over BRYAN ET AL. (U.S. Patent 5,098,547) in view of ROSENKRANZ ET AL. (U.S. Patent 4,053,504).

Instant claim 30 states a process where the composition of which the stability is monitored comprises a reacting mixture for production of (meth)acrylic acid esters or mono- or polyhydric alcohols, the reacting mixture comprising

(meth)acrylic acid esters wherein the reacting mixture is optionally under reduced pressure. In the *Summary of the Invention in column 1, first paragraph*, BRYAN ET AL. teaches the use of a dissolved oxygen system comprised of a system and sensor. The system and sensor response to oxygen is detected and analyzed by generating known values of additional oxygen for the purposes of automatic self calibration of the sensor and self testing of the sensor and system.

BRYAN ET AL. does not explicitly disclose the use of a dissolved oxygen system for monitoring the stability of compositions containing a reacting mixture for producing (meth)acrylic acid esters. However, ROSENKRANZ ET AL. teaches the stabilization of acrylic acid esters of polyhydric alcohols in the *Abstract* as well as the use of atmospheric oxygen to further increase the stabilizing action of polymerization inhibitors in *lines 47 – 51 of column 3*. BRYAN ET AL. and ROSENKRANZ ET AL. are analogous art because they are centered on the effects of oxygen in solutions. At the time of the invention, it would have been obvious to one of ordinary skill in the art to use the dissolved oxygen system of BRYAN ET AL. to monitor the dissolved oxygen concentration of the solutions made of compounds from ROSENKRANZ ET AL.. The motivation would have been to monitor the dissolved oxygen concentration in acrylic monomer solutions to prevent difficulty when trying to polymerize solutions and/or prevent premature or accidental polymerization. Therefore, the invention as a whole would have

been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRYAN T. KILPATRICK whose telephone number is (571)270-5553. The examiner can normally be reached on Mon - Fri (alt Fri off); 8:00 am - 4:00 pm, 8:00 am - 4:00 pm (working Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Barbara Gilliam can be reached on 571-272-1330. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BK
AU 4112

/Barbara L. Gilliam/

Supervisory Patent Examiner, Art Unit 4128